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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/938,937	08/24/2001	Zohar Yakhini	10003516-1	2672

7590 01/12/2007

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EXAMINER	
SISSON, BRADLEY L	
ART UNIT	**PAPER NUMBER**
1634	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/938,937	YAKHINI ET AL.	
	Examiner	Art Unit	
	Bradley L. Sisson	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) *1-9* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 20 November 2006 has been entered.

Election/Restrictions

2. Claims 1-9 remain withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 17 August 2004.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 10-14 remain rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with

which it is most nearly connected, to make and/or use the invention. As set forth in *Enzo Biochem Inc., v. Calgene, Inc.* (CAFC, 1999) 52 USPQ2d at 1135, bridging to 1136:

> To be enabling, the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without 'undue experimentation.' " *Genentech, Inc. v. Novo Nordisk, A/S*, 108 F.3d 1361, 1365, 42 USPQ2d 1001, 1004 (Fed. Cir. 1997) (quoting *In re Wright*, 999 F.2d 1557, 1561, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993)). Whether claims are sufficiently enabled by a disclosure in a specification is determined as of the date that the patent application was first filed, see *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed. Cir. 1986).... We have held that a patent specification complies with the statute even if a "reasonable" amount of routine experimentation is required in order to practice a claimed invention, but that such experimentation must not be "undue." See, *e.g.*, *Wands*, 858 F.2d at 736-37, 8 USPQ2d at 1404 ("Enablement is not precluded by the necessity for some experimentation . . . However, experimentation needed to practice the invention must not be undue experimentation. The key word is 'undue,' not 'experimentation.' ") (footnotes, citations, and internal quotation marks omitted). In *In re Wands*, we set forth a number of factors which a court may consider in determining whether a disclosure would require undue experimentation. These factors were set forth as follows: (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims. *Id.* at 737, 8 USPQ2d at 1404. We have also noted that all of the factors need not be reviewed when determining whether a disclosure is enabling. See *Amgen, Inc. v. Chugai Pharm. Co., Ltd.*, 927 F.2d 1200, 1213, 18 USPQ2d 1016, 1027 (Fed. Cir. 1991) (noting that the *Wands* factors "are illustrative, not mandatory. What is relevant depends on the facts.").

5. For purposes of examination, claim 10 has been interpreted as encompassing the fixation of an infinite number of nucleic acids to a support in the form of an array wherein none of the first plurality of nucleotides are known beyond the aspect that each nucleic acid that occupies a position has a different nucleotide sequence. The method also has been interpreted as encompassing the hybridization of an equal or larger number of second plurality is known, that the nucleotide sequence is broken into at least two regions, the second said region comprising "unstructured nucleotides," that are characterized in having a "reduced ability to hybridize to a

first nucleic acid of the first plurality having a complementary nucleotide sequence without reducing the ability of the second region of each nucleic acid of the second region of each nucleic acid of the second plurality to hybridize to a complementary nucleic acid molecule in a biological target," and that this binding affinity exists even when the biological target and the nucleic acid of the first plurality have the same nucleotide sequence.

6. The claimed method has been construed as encompassing the binding of a virtually limitless number of first plurality, second plurality and biological target nucleic acids to "a surface," yet the method does not provide for any means to correlate any one position or location of the surface with any specific nucleotide sequence, be it that associated with that of a member of the first or second plurality, f with that of the biological target. Given such, one could well have hundreds of thousands of different member of a first plurality being immobilized to a surface of a support, and that equal or larger numbers of second plurality members and/or biological target members are in turn bound to the same surface through their interaction with member(s) of the first plurality. With there being no known relationship between a specific sequence a specific nucleotide sequence, one is left trying to solve for the values of three unknown without having even one known entity. Clearly, one must have at least one known value when trying to solve for three, or even two variables.

7. As required of claim 11, the second plurality of nucleotide sequences and the biological targets are to be present and binding in a simultaneous manner. Accordingly, it stands to reason that members of the biological target and/or members of the second plurality will be immobilized, through hybridization, to immobilized members of the first plurality. Again, there

is no method step recited that would allow one to readily determine when you have a member of the second plurality present or not.

8. A review of the disclosure fins the following examples:

a. Example 1, pages 40-43, "Incorporation of the 2-aminbo-2'deoxyadenosine-5'triphosphate and 2-thiothymidine-5-triphosphate into Polynucleotides by DNA Polymerases;" and

b. Example 2, pages 44-45, "Synthesis of Single Stranded Polynucleotides."

9. While there is no *per se* rule that an applicant must provide an example of their claimed invention, the specification still must set forth in "such full, clear, concise, and exact terms as to enable any person skilled in the art." The two examples provided do not relate to the clamed invention, and a review of the four corners of the disclosure fail to locate where the claimed invention has been fully enabled, much less set forth the best mode contemplated for each of the claimed embodiments.

10. Argument is presented at page 7 of the response of 23 May 2006 that the claimed invention has been limited to the use of a "universal array." As seen below, the use of this term has on its own raised new issues of clarity under 35 USC 112, second paragraph. While applicant's representative asserts that one of skill in the art would readily understand what this term is to mean, no evidence has been made of record that would support this conclusion. In support of this position, attention is directed to MPEP 706.01(c) II:

11. The arguments of counsel cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965). Examples of attorney statements which are not evidence and which must be supported by an appropriate affidavit or declaration include statements regarding unexpected results, commercial success, solution of a long-felt need, inoperability of the prior art, invention before the date of the reference, and allegations that the author(s) of the prior art derived the disclosed subject matter from the applicant.

12. For the above reasons, and in the absence of convincing evidence to the contrary, claims 10-14 remain rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement.

Response to argument

13. At page 7 of the response argument is presented wherein attention is directed to page 21-23 of the specification as providing support for "universally spatially addressable array." It is noted with particularity that claim 10, the sole indepe4ndent claim under consideration, does not recite this limitation. Rather, the claims recite the aspect of "universal array."

14. It is further noted that a text search of Pregrant publication of the instant application (US 20030211474 A), finds but one instance of where "universal array" has been used, and then it appears as "fixed/universal array;" see paragraph 0058.

15. While argument has been presented that the term "universal array" is recognized in the art, such a showing has not been found to address "universally spatially addressable array," nor has it been found to address "fixed/universal array," the only two forms of array found to be acknowledged in the original disclosure.

16. While US Patent 6,083,763, does use the expression "universal array" to a considerable degree, such is in reference to 16 DNA probes being found in the wells of a 96-well plate. By contrast, the instant application speaks to DNA probes being immobilized on a chip, which s not in a well. It is further noted that the term "universal array" does not appear in any of the claims issued in said patent, and accordingly, there is no showing that the term has been found defined and definite.

17. For the above reasons, and in the absence of convincing evidence to the contrary, the rejection is maintained.

18. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

19. Claims 10-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

20. Claim 10 is indefinite with respect to what constitutes the metes and bounds of a "universal array."

Response to argument

21. At page 9 of the response received 20 November 2006, argument is presented that the term "universal array" is an art-recogni8zed term, and that evidence supporting this position is to be found in the declaration submitted.

22. The declarations of Zohar H. Yakhini, Jeffery R. Sampson, and Joel Myerson under 37 CFR 1.132, filed 20 November 2006, are insufficient to overcome the rejection of claims 10-14 based upon 35 USC 112, first and second paragraphs as set forth in the last Office action because: US Patent 6,268,147, which is relied upon to show that the term is art-recognized, does not provide any definition of the term. Further, it is noted that the terms does not appear in any of the clams. It is further noted that the arrays contain all possible oligonucleotides of a given length, e.g., 6-mers, 7-mers, or 8-mers. The instantly claimed invention is not limited to the arrays that contain all possible oligonucleotides of a given length, e.g., 6-mers, 7-mers, or 8-

mers. Assuming that the term were to mean all possible oligonucleotides of a given length, it is noted that there are 65,536 possible 8-mers. This is not the same as the 96-well plate used in US Patent 6,083,763. It is further noted that each of the wells of a 96-well plate is to comprise but a 4 x 4 array. With there being 96 arrays of 4 x 4, a total of 1,536 probe can be present. Clearly, this is not even close to the over 65 thousand probes present in the "universal array" of the '147 patent.

23. While the prior art does use the term, it is clear that the term must take on different meanings. The present application would seeming offer yet another and different definition.

24. Argument is presented that the use of a known sequence can in tern be used to identify the target to which it bind is not persuasive when the hybridization conditions are unknown, or when they are known to be of such low stringency that probe can bind to highly non-complementary sequences, and/or when triplex structures form. The claims do not exclude such large areas of non-enablement, and the specification is silent as to how such issues are to be overcome.

25. For the above reasons, and in the absence of convincing evidence to the contrary, the rejection is maintained.

Conclusion

26. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action

after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

27. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

28. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley L. Sisson whose telephone number is (571) 272-0751. The examiner can normally be reached on 6:30 a.m. to 5 p.m., Monday through Thursday.

29. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

30. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Bradley L. Sisson
Primary Examiner
Art Unit 1634

BLS